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ABSTRACT

The World Bank has been assisting the efforts of developing countries to reform secondary education systems for more than 35 years. During this period, the context and imperatives for education reform have changed considerably due to various factors such as globalization of the world economy and the impact of new technologies. This paper is one of a series, which addresses a wide range of topics within secondary education that reflect current challenges. The paper, a country case study, explores the complexity of secondary education and training systems and the correspondingly difficult choices that governments face in reforming them. Specifically, the paper discusses secondary schools that teach two sets of students in two shifts--an arrangement used where the supply of schools is inadequate to provide single-shift schools for all students. It considers the circumstances in which double-shift schools are used and the issues raised by this type of arrangement. The paper cites Brazil and Malaysia as two countries with significant numbers of students in double-shift secondary schools, with significant numbers of double-shift schools also found in Turkey and Romania. It concludes that double-shift schools appear to offer an adequate education and, therefore, appear to be a viable solution, at least in the short to medium term, for countries seeking to expand their secondary education systems within resource constraints. Contains 13 notes, a table, and 18 references. (BT)

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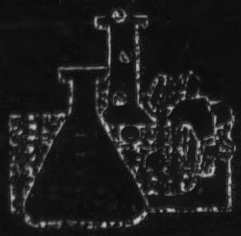
DOUBLE-SHIFT SECONDARY SCHOOLS: POSSIBILITIES AND ISSUES

Toby Linden



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World Bank, Human Development Network
Secondary Education Series

Double-shift Secondary Schools: Possibilities and Issues

Toby Linden
The World Bank

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Washington, D. C

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Foreword

Welcome to the Secondary Education Series of the Human Development Network, Education Group at the World Bank.

The World Bank has been assisting developing countries in their efforts to reform their secondary education systems for more than 35 years. During this period, the context and imperatives for education reform have changed considerably due to various factors such as globalization of the world economy and the impact of new technologies. This new environment requires rethinking the traditional way of providing secondary education and training systems and both industrializing and industrialized countries are grappling how best to prepare their youth to become productive workforce as well as responsible citizens. Thus, this series will address a wide range of topics within secondary education that reflect the challenges that we are facing now.

The publications in this Secondary Education Series might broadly be considered to fall into two categories, though there are clearly overlaps: those papers addressing policy issues and those describing in more detail particular countries' experiences. This paper, "Double-shift Secondary Schools: Possibilities and Issues", is in this second category. The intention behind these country case studies is to expose the complexity of secondary education and training systems and the correspondingly difficult choices that governments face in reforming them. It is only through a clearer understanding of what is happening in particular countries that fruitful discussion and analysis, and further research, can take place. We hope that these case studies stimulate debate. We welcome your comments.

World Bank
Human Development Network
Education Group
April 2001

Introduction

This paper discusses secondary schools which teach two sets of pupils in two shifts; an arrangement used where the supply of schools is inadequate to provide single shift schools for all students. Thus, this paper is not concerned with: (a) triple- or quadruple-shift schools, which do not permit adequate student learning achievement; or, (b) arrangements like apprenticeships in which students study during one part of the day (or night) and perform some work during the other portion *which is related to their study*, as these arrangements are rarely used to increase capacity or reduce costs. This paper considers the circumstances in which double-shifts schools are used and then the issues raised by this type of arrangement.[1] It concludes by arguing that double-shift schools appear to offer an adequate education and therefore appear to be a viable solution (at least in the short to medium term) for countries seeking to expand their secondary education systems within resource constraints. However, no enough is known about these schools and ways to make them more effective, because of policy neglect.

Background

The World Bank, as evidenced through its project documents and policy reports, has taken a somewhat ambiguous attitude to double-shift schools. *Education in Sub-Saharan Africa: Policies for Adjustment, Revitalization, and Expansion* (World Bank, 1998a) recommends in a very brief discussion the use of double-shift schools to increase the average number of classes per teacher (and hence reduce unit costs) at the primary and secondary levels (pages 40 and 57, respectively). It recognizes the potential for parental opposition.

Beyond that, however, most documents on secondary education projects rarely give any consideration to these schools, even in countries where significant numbers of schools operate this way or where it is proposed to *introduce* some double-shift secondary schools.[2] A major review of secondary education did not discuss double-shift schools at all (Fuller, Holsinger et al, 1993).

Most discussions of double-shift schools relate to primary education. Though there is no information to quantify the proportions across many countries, some countries – for example, Malaysia and Brazil – have significant numbers of pupils in double-shift schools.[3]

The most important source of information beyond World Bank documents about double-shift schools is Mark Bray's *Double-shift Schooling: Design and Operation for Cost-Effectiveness* (Bray, 2000), on which this paper draws heavily. Bray sets out the principles and issues and provides an excellent discussion. However, he notes that there is relatively little empirical evidence of the impact of different policy choices.

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[1] What are called here 'double shift' schools go by a variety of others names, such as bi-sessional, multi-shift and so on. It should also be noted that double-shift schools may have one of the shifts in the evening, as happens in Brazil, for example (see World Bank and IADB, 2000)

[2] See, for example, World Bank, 1990, page 11.

[3] World Bank (1986, p.9) reports that 80% of secondary classes in Malaysia are schooled in double-shifts and in Brazil around 60% of students enrolled in upper secondary education (grades 9-11) are in night schools, because the majority of them must work full-time (World Bank and IADB, 2000, p. 11). Significant numbers of double-shift schools can also be found in Turkey and Romania (Fretwell and Wheeler, 2001a and 2001b.

When Are Double-Shift Schools Used?

Policy makers might consider utilising double-shift schools for the following reasons:

- Increased efficiency of use of human and capital resources (i.e., teachers can teach more pupils and there is a reduced need to build more schools)
- Increased access through increased number of school places
- Increased teacher salaries without increasing unit costs, if salaries are low and teachers are paid only a little more for teaching two shifts
- Pupils can perform productive work during the day (because they attend school only morning, afternoon or at night), thus reducing the opportunity costs of attending schooling
- Reduce overcrowding where enrolment rates are high

Issues

Public Perceptions

In most education systems, double-shift schools are a minority aspect of the system and seen as of inferior quality and less attractive to teachers and parents (see, for example, Batra, 1998). This is usually on the grounds that these schools provide an inferior education even though, as is shown below, there is no evidence of this. What is often true is that double shift schools enroll predominantly poorer students and, as a consequence, are seen as inferior schools (Nhundu, 2000 and World Bank and IDB, 2000).

Therefore, double-shift schools are often also seen as a temporary measure where financial resources (of the government and/or parents) are constrained. However, what starts out as a temporary expedient may develop into a permanent feature, as happened in Zimbabwe (Nhundu, 2000).

The particular issues that double-shift schools face will be discussed below, but any large-scale reform will require specific stakeholder dialogue to gain support for these institutions. This is especially the case if such schools are going to be *introduced*. Bray (2000, p. 100) suggests that reasonably large school implementation is needed to help the concept become accepted as normal.

It is sometimes argued that double-shift schools are attractive to some parents, usually those who are poor or in rural areas, because these schools enable their children, especially those of secondary school age, to undertake work (paid, on the farm, or in the home) during some portion of the day and thereby reduce the opportunity cost of schooling. On the other hand, parents, typically those in urban settings, in the formal sector would have to bear additional costs for childcare (see, for example, World Bank, 1988a, p. 48). However, to the extent that surveys have been conducted, these advantages are not widely seen by parents (Batra, 1998 and Nhundu,

2000). It is also pertinent to note that these opportunity costs are dependent on the local labour markets offering employment.[4]

Financial Considerations

One of the principal reasons for moving to a double-shift arrangement is the potential savings from not having to build more schools to accommodate increased numbers of pupils. There are, in fact, very few studies able or that even attempt to substantiate this claim. A study in Malaysia did calculate *capital* savings of 25% for secondary schools.[5] One might hypothesise that savings at the secondary level are especially important (and desirable) to achieve because of the high cost of science, computers, and other specialist equipment.

Savings on *recurrent* budget costs depend on the specific organisation of schools. For example, no savings will accrue if two sets of teachers are used (as happened in Zimbabwe[6]) or if teachers are paid twice as much for teaching a second shift. However, in Senegal those working a second shift are only paid an extra 25%.[7] Similarly, a single head teacher for both 'schools' would save money if he/she is not paid twice as much. Hypothetically, more effective use of administrative staff, such as guards and messengers can also be made, though there appear to be no studies attempting to demonstrate or quantify this.

It should be noted, however, that double-shifting is likely to place increased burdens on school facilities, which is likely to lead to higher *maintenance* costs and reduced lifespan. This is especially pertinent in poor countries where the facilities may be in poor condition to begin with. Again, though, there is no documentation of the magnitude of these changes or the extent to which they outweigh potential savings.

Cognitive Achievement

There is a significant lack of good evidence about the cognitive achievement in double-shift schools. The available evidence shows no consistent significant cognitive disadvantage to pupils in double-shift schools.

A recent study of night schools at the secondary level in Brazil found that the fact of attending day or night school did not appear to have a significant effect on achievement (World Bank and IDB, 2000, p. 46). The overall differences between day and night school students appear to be largely due to differences in student socio-economic status, attendance patterns and the characteristics of the schools they attend. An older study in Chile (Farrell and Schieflebein,

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[4] Thus, for example, in Jamaica high youth unemployment likely outweighs any decreased opportunity costs of having time during the day away from school (see World Bank, 1988b, p. 56).

[5] Beebout, 1972, p. 175, as reported in Bray, 2000. Higher savings, of 46%, have been calculated in Zambia (Kelly et al, 1986, p. 212, as reported in Bray, 2000) but this is in primary schools and assumed savings based on a model rather than actual savings.

[6] See Nhundu, 2000.

[7] World Bank and IDB, 2000, p. 7.

1974) found that there were no significant differences between pupils in double-shift schools (though this study was of primary schools).[8]

Instructional Time

In all education systems, hours of schooling increase as children get older. Generally, one would guess that double-shift schools have less instructional hours than single-shift schools in the same system. However, Bray was able to gather evidence from both junior and senior secondary schools in five countries (Laos, Malaysia, Philippines, Singapore and Zambia) and found that only in Philippines was there a difference in official hours of instruction: of about 7 percent at junior secondary and almost 10 percent at upper secondary.[9]

It is hard to envisage a school day of much more than 5 hours within a double-shift system (say, 7.30 am to 12.30 pm and 1 to 6 pm). Within the OECD there is a mean of 929 hours per year for intended instructional time for 12-14 year-old age group (OECD, 1998).[10] A five-day week would require 37 weeks to get up to the OECD average (31 weeks for a six-day week). This is a cause for concern to the extent to which a 37-week school year is not possible because of national holidays and seasonal factors.[11]

However, these considerations need to be tempered for three reasons. First, there is a great deal of difference between the required or intended hours of instruction and the actual hours that a child receives. The figures in Table 1 are somewhat staggering. For example, students in the Philippines receive 53 percent *less* instruction than intended while Russian students 64 percent *more*.

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[8] Farrell and Schieflebein (1974), p. 28. Bray (2000) cites a small number of other studies, generally favourable to double-shift schools, but notes that caution needs to be expressed about these results – the studies are often based on pilots, involve only a small numbers of schools, or are of insufficient rigor.

There is also an interesting difference of interpretation of H. Beebout's "The Production Surface for Academic Achievement: An Economic Study of the Malaysian Secondary Education" (Beebout, 1972) as between the World Bank and Bray. World Bank (1998c) says that Beebout shows that (a) fewer students per teacher will improve the quality of interaction and raise student's achievement, and (b) more than one shift of classes per day will strain the effectiveness of resources and lower achievement (p. 13, footnote 13). On the other hand, Bray argues that the study is partly positive – showing that in English-medium schools no difference in performance is discernible (p. 88).

[9] Bray, 2000, p. 44, Table 3. Interestingly, Bray's sample of schools at the primary level showed much greater variation: Burkina Faso, The Gambia, Ghana, Hong Kong, Jamaica, Myanmar, and Senegal all had a difference in official hours; only Imo State in Nigeria maintained the same requirements for single- and double-shift primary schools. World Bank (1986, p. 9) says, though there is no evidence presented in the text, that double-shift schooling at the secondary level results in a reduction in instruction time by 10%.

[10] Table E4.1a.

[11] And, I think, suggests that triple- and quadruple-shift schools are extremely unlikely to offer effective schooling at the secondary level.

Table 1. Difference between annual intended and actual hours of instruction for 13-year-old students

Country	Intended Instruction time in hours (1996)	Actual hours of instruction (1997)	Difference* (hours)	Difference* (%)
Argentina	913	888	-25	-2.8
Brazil	667	800	-133	19.9
Chile	990	1,005	-15	1.5
China	918	893	-35	-2.8
Indonesia	1,120	999	-121	-12.1
Jordan	947	1,322	375	39.6
Malaysia	1,230	999	-231	-23.1
Paraguay	1,080	1,189	109	10.1
Philippines	1,467	960	-507	-52.8
Russian Federation	893	1,467	570	64.3
Thailand	1,167	1,167	0	0
Uruguay	863	863	0	0
Average (unweighted)	1021	1046	25	2.4

Sources: For intended hours, OECD 1998, table E4.1a. For actual hours, OECD, 2000, table 36.
Author's calculations for remaining columns and averages.

* A negative number indicates less hours were taught than intended.

Secondly, this table also demonstrates the wide variation in number of hours delivered, from 741 hours in Sweden to 1069 hours in Belgium. A five-hour school day requires only 30 five-day weeks to reach the Swedish mark.

Third, the research evidence from a number of different countries generally concludes that what is important is time on task rather than hours of instruction – that is, learning time rather than time in the classroom spent on administrative matters, being disrupted by other pupils, and so on. A crude comparison between data in Table 1 and the results from the TIMSS repeat confirms this. In the TIMSS repeat, the highest ranked OECD country is Korea, whose intended instructional total (867 hours for 13-year-olds) is significantly below the average for OECD countries (934) (OECD, 2000, Table E4.1a). Other OECD countries in the top ten performers in the TIMSS repeat assessments in mathematics are Belgium, Hungary and the Netherlands, whose intended instructional hours vary considerably (1069, 852 and 1067, respectively).

Narrowing of the curriculum

Another concern is the extent to which the effect of double-shift schooling reduces the range of curriculum options for pupils. We might expect the subjects in which cognitive achievement is usually measured – reading, writing, mathematics – to be protected in a shorter school day and consequently standards to be maintained (which is consistent with the evidence on student

achievement presented earlier). It may be that it is outside these core subjects that reductions in achievement occur.

This curriculum narrowing would be more serious at the secondary level, if subjects like science and technology were affected.[12] On the other hand, double-shift schooling, with consequent increase in the number of pupils using the equipment, might make expensive subjects like science possible or sufficiently cost-effective.[13] However, in the absence of actual case studies of the curriculum of double-shift secondary schools, this is conjecture.

More broadly, double-shifts may tend to crowd out the time for extra-curricular activities. This is a particular concern at the secondary level where pupils might find antisocial or illegal activities to engage in otherwise. Provision of opportunities for constructive activities (social centres etc) might be as costly as additional schools. However, Bray (2000) suggests that it is possible to organise these with thoughtful management. Indeed, he suggests that it may be that the greater volume of students that double-shifting generates helps to justify the investment in expensive equipment. He notes, however, a point we will return to below, that to organise, for example, inter-school competitions involving double-shift schools requires that there be sufficient of these type of schools to ensure that the schedules and other arrangements accommodate their needs.

Teachers

Teachers share with parents an antipathy towards double-shift schools (see, for example, Batra, 1998). Again, though, these opinions seem based on the lower status of such schools rather than objective evidence that the schools are of lower quality. Where teachers teach both shifts, it may be also that their conditions of work (greater total working hours and numbers of students) are worse than teachers in single-shift schools which makes them less attractive to teachers. On the other hand, extra pay for working more than one shift may be attractive to low-paid teachers who would otherwise have to take a second job. Since teachers' support for reform is a determinant of success, this is an area that needs attention.

Perhaps a more serious concern is that there is some evidence that teachers in these schools are generally less well-qualified and teacher absenteeism is higher (see, for example, World Bank and IADB, 2000, p. 46). This is a concern because teacher quality (compromising things like total years of schooling, knowledge and experience) is a key determinant of effective schools in both developed and developing countries (see, for example, Fuller and Clarke, 1994), though the limited evidence presented above suggests that children in double-shift schools do as well as other students.

[12] And in some countries issues like anti-violence and HIV/AIDS awareness might also represent critically needed subjects which could be squeezed out due to time constraints.

[13] One might also question the value of providing additional subjects when the quality of teaching (and learning) in the core subjects is so weak in many developing countries.

Equity

While it is hard to get precise figures, it appears that generally double-shift schools serve poorer or disadvantaged populations and, as just noted, likely have less qualified teachers. For example, in Brazil, 57 percent of night school students at the secondary level are employed or looking for work compared to 23 percent of day time students (World Bank and IADB, 2000, p. 12). Those that can afford to do so, send their children to single-shift (often private) secondary schools.

There is, of course, an opportunity here. Tackling the problems of double-shift schools and making them more effective would have strong poverty reduction potential. More generally, if the only way to provide schools for the poor was in double-shift schools of acceptable quality, this too would be a poverty-targeted intervention.

School Management

It is clear from the discussion above that, just as in single-shift schools, the management of double shift schools will have a significant impact on their effectiveness. For example, the number of hours of instruction, the time available for non-core subjects, the availability of extra-curricular activities and the likely cost savings can all be manipulated more or less effectively. Bray (2000) discusses many of the issues in detail.

It should be noted here, however, that there are number of important issues to do with the management of double-shift schools for which we lack sufficient evidence to make informed judgments.

- Are the children in double-shift schools more difficult to manage because the shorter hours and greater numbers of children mean they have less connection to the institution? Or is this compensated for by the fact that the alternative is being on the street or because double-shift enables them to seek employment?

- How easy is it for one head teacher to manage two shifts or is it more effective to have separate head teachers for the two different shifts? In what ways?

- Are there systemic biases against morning, afternoon, or evening classes?[14] If so, of what kind? Is student achievement across the shifts the same?

- Do double-shift schools require changes in the teaching process, for example the greater use of video, ICT or teacher assistants to counter the effects of teachers' afternoon fatigue?

[14] It appears that in Zimbabwe the morning is preferred while in India the afternoon (see Batra, 1998 and Nhundu, 2000, respectively).

Conclusions

In their review of what makes for effective secondary schools, Fuller and Clarke (1994) identify three factors of central importance for developing countries:

- the availability of an adequate supply of textbooks
- teacher quality, i.e., total years of schooling and of post-secondary training
- instructional time.

With our current state of knowledge we can hypothesize that double-shift secondary schools may be at a structural disadvantage only with respect to instructional time, i.e., by their very nature double-shift schools have a lower upper limit on the total amount of instructional time they can schedule for their students. However, it appears possible to schedule 'enough' hours (based on OECD figures) and certainly there appears to be no 'right' number. Moreover, the discussion above indicated that regulated classroom time is not everything.

More broadly, though, double-shift schools are at a greater disadvantage to the extent to which they are ignored or undervalued, and, therefore, have fewer of the critical quality inputs identified by Fuller and Clarke.

There is a central policy – and political – dilemma here. In the long run, it seems desirable for all children to attend single shift schools for the full day, to get the maximum benefit and having the evening to socialize with friends, relax and participate in extra-curricular activity. However, if double-shift schools are proclaimed as a temporary expedient – doomed to be replaced "as soon as circumstances permit" – then they will inevitably be seen as second class option. They will have lower status and likely attract the more ill-prepared students and the weaker teachers. This will, in turn, make them unpopular for parents who will maintain or increase the political pressure to have them abolished. But it may not be possible to meet these expectations.

On the other hand, seeing double-shift schools as a solution for the medium term (perhaps even for the foreseeable future) may make it seem worth investing time and energy to increase their effectiveness. Embracing double-shift schools on a larger scale may make their presence more acceptable. But it takes significant political courage to positively support these schools, especially in the absence of good evidence of ways to make them more effective (and flimsy evidence about the effect on student achievement). This dilemma will come into sharper focus as developing countries face increasing pressure from larger numbers of primary education graduates.

Finally, it should be noted that this paper has not addressed the issue of what the alternative to double-shift schooling might be in a country or the cost-effectiveness of different educational investments. Would it be better for a government with scare resources to invest in moving from double- to single-shift schools, or in in-service training for double-shift teachers, better equipment and facilities for double-shift schools or in reducing teacher absences? Would the absence of double-shift schools mean significant numbers of children would not be in school at all? Is this acceptable? Would money spent on full-time schooling save (future) money on

prisons and police? Are the resources otherwise used to create double-shift schools being targeted at quality improvements in single-shift schools? Is this acceptable? These are dilemmas that policy makers in developing countries must face. But this paper hopes to demonstrate that these are genuine dilemmas – double-shift schools should not be, as they so often are, dismissed out of hand.

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